

## Composite coated jaw faces

**Description of Technology:** Clamp or grip faces used in fiber/fabric tensile testing instruments are coated with an aramid-epoxy composite, thus allowing high-strength fiber/fabric samples to be tested with greater reproducibility at lower applied pressure and without clamp or grip face scarring.

## **Patent Listing:**

1. **US Patent No.** 6,176,142, Issued on January 23, 2001, "Composite coated jaw faces" <a href="http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=6,176,142.PN.&OS=PN/6,176,142&RS=PN/6,176,142</a>

Market Potential: The use of constant-rate-of-extension (CRE) tensile testing machines to determine fiber and fabric properties is well known to those skilled in the art. These machines (e.g., those made by the Instron Corporation, Canton, Mass.; MTS Systems Corp., Eden Prairie, Minn.; United Calibration Corp., Huntingdon Beach, Calif.) have clamps or grips which are designed to grasp the ends of the material (fiber, fabric, etc.) to be tested. There are many different types of clamps or grips.

The clamps are designed to provide enough compressive force to securely hold the ends of the material or fiber to be tested, so that when the sample is stretched or flexed, for example, the ends do not pull out of the clamps nor are they sheared, but rather remain in place. The clamps on the CRE instruments are generally made of steel and other materials and the opposing faces of the clamps are often coated with a resilient material. This material can be comprised of elastomers such as Neoprene. RTM. or Adiprene.RTM., for example. This surface is generally about 0.050 inches thick, which helps prevent the sample from being pinched at the clamp to clamp contact edge. However, these clamps do not prevent slippage and damage of materials made from high strength fibers or the fibers themselves, and additional clamp pressure is necessary when testing these materials, sometimes on the order of 500 psi or greater. This added pressure allows the test sample to be pinched at the clamp to clamp contact edge, and the yield/break point is no longer in the center of the testing zone. Additionally, these clamp faces are scarred by the high-strength materials, and must be recoated after relatively few test runs, thus resulting in additional expense and instrument down time.

There are a wide variety of clamp faces and coating materials described in the art, but none which describe the current composite coating.

## **Benefits:**

Composite jaw face made with current composite coating

## **Applications:**

Clamps or grips on appropriate machinery